

## REMARKS

All claims were rejected in the Official Action under 35 U.S.C. 103 through the combination of Brown, U.S. Patent No. 4,998,691, in view of Rahe, U.S. Patent No. 4,733,471. By this Amendment After Final, Applicant is responding in recognition of the comment made in the Final Official Action that the term "fragile" has no limiting effect. The term has been removed along with any limitation associated therewith.

This response is filed within the two month period following the mailing of the Final Official Action. The arguments presented in prior responses are incorporated herein as if set forth in full. The intent of this response is to more fully state the impropriety of the combination of the Brown and Rahe references and to further address the motivation asserted in the Official Action as motivated by Rahe regarding one aspect of the combination, the selection of diameter for the clamp.

### **The present invention and the claim recitations**

The present riser assembly includes a clamp specifically compatible with the CPVC pipe to avoid subjecting the pipe to over compression through 1) a limitation on the ability to tighten the clamp beyond a fixed amount, 2) the presentation of a cylindrical surface to effect uniform compression and 3) a preselected amount of compression to hold the pipe as a vertical riser. To this end, claim 8 recites 1) retaining the two bars together "with the first straight sections juxtaposed with the second straight sections", 2) each of the two bars having a "hemicylindrical section" and 3) the relationship between the clamp and the pipe including the "inside diameter smaller than the specified outside diameter by not to exceed five percent."

**Inventive result of diametrical interference and hemicylindrical extend.**

There is a specific structural significance to the foregoing that impacts the core operation of the present invention and is not found in either Brown or Rahe. By having the diameters in interference and the sections both hemicylindrical as claimed, the bars must be drawn together with interference between each hemicylindrical section and the pipe *as well as* with interference against drawing the two sections together. In this way, a more uniform clamping is accomplished which is not simply through compression in one direction, i.e., perpendicular to the mating surfaces. This realization also shows a difference in kind between the present invention and the applied references. **Brown fails to disclose a hemicylindrical section on each bar of the clamp.**

The Brown reference discloses a pipe clamp incidental to a support for the clamp. The clamp itself is not described in detail and there is *no teaching whatsoever* regarding each bar of the clamp defining a "hemicylindrical section." The Official Action asserts that the sections are "substantially hemicylindrical." Applicant has no understanding of what "substantially" means in the context of the Official Action other than to assert that the current claims do not use that phrase. Figure 1 in Brown discloses what might approach a cylindrical clamping surface but not with sufficient clarity to teach such a device. The difference between a typical clamp with each side falling short of defining a hemicylindrical clamping surface and the present invention where this feature is strictly defined does not admit of resolution in Figure 1 of Brown. Reference may be made to the Rahe reference where the normal clamp arrangement is

shown to fall short of hemicylindrical by a small amount yet has significant operational consequences.

**Brown fails to disclose a smaller diameter in interference fit.**

The Brown reference does not discuss fit such that there is nothing about the clamp surface having a diameter "smaller than the specified outside diameter" of the pipe. The teaching directs one to the contrary. In Col. 2, lines 13-21:

The significant advantage of this arrangement is that any pullout forces induced by the piping system on the supports are resisted by the post or stud in direct tension rather than by a combination of tension and bending due to eccentric prying that occurs with typical designs. The result is that smaller, more efficient posts or studs and support rods can be used to support the piping than can be used with other constructions.

The only way to avoid bending is to allow the pipe to slide in the clamp. The point to Brown is to hold the constrained pipe from moving up or down. The constrained pipe extends laterally (Col. 1, lines 10-11, 54-56, 60-61) and thermal expansion and contraction would cause bending of the mount.

**Rahe uses the device of a section which is less than a hemicylinder for clamping.**

Unlike the Brown reference, Rahe does speak of the clamp and clamping mechanism. See Col. 8, line 12 et seq. The Rahe reference specifically uses the device of making one section less than a hemicylinder to allow fit and then tightening the device to form compression in one direction, perpendicular to the mating surfaces as drawn together by the threaded elements 42, 44. There is no teaching of a hemicylindrical section of interference fit with the supported pipe. As such, the percentage of fit for which Rahe has been applied as a reference, Col. 6, line 23 et seq., is not related to the same mechanism as the present invention.

**Lack of motivation to employ the mechanism of Rahe.**

Brown discloses a horizontally supported pipe that appears not to even restrain the pipe except in the up and down directions. Even if the teachings in Brown are inconsistent, any applied clamping mechanism is undisclosed. Certainly there is no teaching of interference between the supported pipe and each section of clamp. There is no motivation in Brown to add a clamping mechanism, whether of Rahe or otherwise. There is no motivation to balance the load of a vertical pipe with a gripping force that does not crush a CPVC pipe or anything similar. Rahe discloses a device for connecting cylindrical elements end to end. There is nothing in Rahe that would motivate one to use this mechanism to mount horizontal pipe that has no load axially of the pipe. For the Official Action to assert a motivation for combination without reasoning for that motivation is inconsistent with the recent Supreme Court decision of *KSR v. TELEFLEX*.

Further to a lack of motivation, the mechanism of Rahe is not the same as employed in the present invention. Even accepting the unsupported motivation, application of the Rahe mechanism with the irrelevant percentages of fit create a different device not relevant to the present invention.

**Conclusion.**

The clamping structure and mechanism of the present invention employing hemicylindrical clamping elements and smaller diameters defining the resulting circular passageway are novel. The application of Brown and Rahe, taken independently or in combination, fail to support a *prima facie* case of obviousness based on two required

criteria, a need for every limitation in the combination and a need for teaching, suggestion or motivation to combine references. Further, the operation of the subject matter of the present claims to allow the controlled installation and retention of a vertical CPVC pipe is not remotely suggested, satisfied or contemplated by Brown and Rahe.

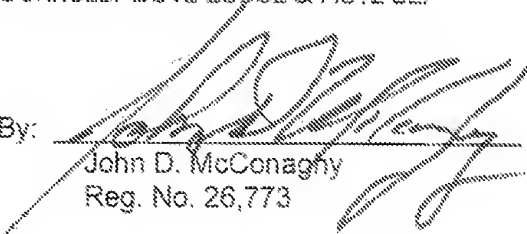
The claimed invention is novel, useful in satisfying a need not otherwise shown to be realized by other mechanisms and unobvious in light of the applied art which fails to meet two essential criteria for a *prima facie* case. Therefore, it is asserted that the present application is properly formed and that the claims recite patentable subject matter. Consequently, a notice of allowance is earnestly solicited.

Respectfully submitted,

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